CONTENTS

19 *Conference paper* **The steel industry at the dawn of the next century** I. Christmas

27 **Development of sizing press at Sollac Fos** D. Mougenez, Y. Codur, G. Roux, and R. Alberny

31 **Converting iron units to quality steel** J.-P. Birat and G. Baillet

36 **Structure–property relationships for normalised flanges for low temperature service** B. Mintz

41 **Influence of doping of CaO and/or MgO on stepwise reduction of pure hematite compacts** A. A. El-Geassy

53 **Sticking behaviour in direct reduction of iron ore** P. L. M. Wong, M. J. Kim, H. S. Lim, and C. H. Choi

58 **AOD/CLU process modelling: optimum mixed reductant addition** M. Görnerup and P. Sjöberg

64 **Reduction of centre cavity by forging with liquid core in round billet** A. Yamanaka and M. Okuda

99 **Rock drill steel rolling in fully automatic bar mill** S.-E. Lundberg

111 **Equilibrium reactor performance analysis for production of iron carbide** A. N. Conejo and G. P. Martins

117 **Determination of metallurgical coke reactivity at INCAR: NSC and ECE-INCAR reactivity tests** J. A. Menéndez, R. Álvarez, and J. J. Pis

122 **Carbonising mechanism and carbon distribution behaviour during direct reduction in shaft furnace** Q. Lu, W. F. Jiang, C. X. Lu, L. G. Zhao, H. S. Yin, and J. F. Lang

127 **Flow pattern and alloy dissolution during tapping of steel furnaces** H. Berg, H. Laux, S. T. Johansen, and O. S. Klevan

169 *Overview* **Secondary steelmaking developments in British Steel** M. S. Millman

176 **New thermomechanical strategy for production of high strength low alloyed multiphase steel showing transformation induced plasticity effect** K. Eberle, P. Cantinieaux, and Ph. Harlet

182 **Kinetics and catastrophic swelling during reduction of iron ore in carbon bearing pellets** R. C. Nascimento, M. B. Mourão, and J. D. T. Capocchi

187 **Blast furnace performance as influenced by burden distribution** B. D. Pandey and U. S. Yadav

193 **Experimental studies of viscosities of some $CaO–CaF_2–SiO_2$ slags** F. Shahbazian, Du Sichen, K. C. Mills, and S. Seetharaman

200 **Ferrite growth from austenite in C–Mn steels during continuous cooling** C. Qiu, J. Sietsma, and S. van der Zwaag

205 **Slab cracking after continuous casting of API 5L X-70 grade steel for pipeline sour gas application** R. Mendoza, J. Huante, M. Alanis, C. Gonzalez-Rivera, and J. A. Juarez-Islas

239 **Comparison of extreme value statistics methods for predicting maximum inclusion size in clean steels** G. Shi, H. V. Atkinson, C. M. Sellers, and C. W. Anderson

247 **Kinetics and mechanism of smelting reduction of fluxed chromite: Part 1 Carbon–chromite–flux composite pellets in Fe–Cr–C–Si melts** Y. L. Ding and A. J. Merchant

254 **Kinetics and mechanism of smelting reduction of fluxed chromite: Part 2 Chromite–flux pellets in Fe–C–Si melts** Y. L. Ding and A. J. Merchant

262 **Viscosities of ironmaking and steelmaking slags** K. C. Mills and S. Sridhar

269 **Development of intelligent mould for online detection of defects in steel billets** S. Kumar, J. A. Meech, I. V. Samarasekera, J. K. Brimacombe, and V. Rakocevic

285 **Recycling of coated steel scrap: coating removal rates of different types of organic coated steel** R. W. Weaver, J. Edmundson, and K. Williams

291 **Advanced electrochemical methods for food can evaluation** F. E. Buttrey, J. A. McAlister, and H. N. McMurray

297 **Techniques for real time prediction of ambient air quality in vicinity of large integrated steelworks** N. C. Avery, F. Pooley, J. Charles, and R. Leonard

314 *Conference paper* **Machinable engineering steels for the future** A. Ellis, C. G. Vasey, and P. C. Morgan

318 *Conference paper* **Development of new methodology for testing machinability of steels** M. A. Butler

333 **Design of steels for high speed machining** S. V. Subramanian, H. O. Gekonde, X. Zhang, and J. Gao

339 Contraction and meltdown behaviour of olivine iron ore pellets under simulated blast furnace conditions J. Sterneland and A. K. Lahiri

349 Effect of temperature and deformation histories on grain coarsening in medium carbon steel Y. Neishi, M. Akiyama, and K. Kuroda

353 Effect of slag/metal interfacial tension on kinetics of dephosphorisation M. Nasu, K. C. Mills, B. J. Monaghan, A. Jakobsson, and S. Seetharaman

358 Rationale on composition of slags in oxygen steelmaking processes E. T. Turkdogan

363 Water modelling study of fluid flow and mixing characteristics in bath during AOD process J.-H. Wei, J.-C. Ma, Y.-Y. Fan, N.-W. Yu, S.-L. Yang, S.-H. Xiang, and D.-P. Zhu

372 Characteristics of steelmaking flue dust L.-M. Wu

378 Study of aluminium inhibition layer formed during hot dip stage of galvannealing on titanium interstitial free and rephosphorised titanium interstitial free substrates S. E. Price, V. Randle, and M. Pichilingi

387 Study of corrosion mechanism occurring at cut edges of organically coated galvanised steels D. A. Worsley, A. Belghazi, and S. M. Powell

393 Influence of lubrication on through thickness texture of ferritically hot rolled interstitial free steel C. J. Barrett

423 Review of mathematical models of fluid flow, heat transfer, and mass transfer in electroslag remelting process B. Hernandez-Morales and A. Mitchell

439 Fast model of thermal camber evolution in metal rolling for online use S. Jarrett and J. M. Allwood

449 Finite element analysis and experimental validation of microstructure evolution during coiling of low carbon steel sheet A. Monsalve and D. Celentano

457 Thin slab casting with liquid core reduction A. Yamanaka, S. Kumakura, K. Okamura, T. Kanazawa, T. Murakami, M. Oka, I. Takeuchi, and T. Watanabe

463 Forecasting and scenario planning in the steel packaging industry: case of tinplate petfood cans M. C. Thomas, M. Evans, and R. L. Davies

470 Coating microstructure development during Zinquench galvanising of sheet steel D. Le Jeune, G. A. Jenkins, and J. D. Parker

477 Study and redesign of high temperature batch annealing furnace for production of grain oriented electrical steel A. Buckley, A. J. Moses, and L. Trollope

---

News and views
pages **1, 71, 141, 211, 305, 399**

Conference reports
pages **6, 7, 9, 17, 76, 146, 151, 217, 221, 308, 404, 408**

Historical metallurgy
pages **85, 228, 323, 416**

International conference diary
pages **22, 92, 164, 232, 326, 420**

IoM Steel Division Forum
pages **24, 94, 165, 234, 328**